4 Installation

This section outlines the steps involved in installing BASINS 3.0 and creating a BASINS Project. BASINS 3.0 is available on the World Wide Web at http://www.epa.gov/ost/basins. Additionally, BASINS 3.0 is packaged in 10 sets of CDs, each set corresponding to a USEPA Region.

The key steps for installing an operational BASINS system on a user's computer include the following:

1. Obtain BASINS through the World Wide Web or as a set of CDs.
2. Install the BASINS system, using the setup wizard.
3. Extract BASINS data.
4. Build a "Project File."

Installation Requirements

It is assumed that BASINS users already have some familiarity with Microsoft Windows, as well as GIS concepts and ArcView software, and that they have a basic understanding of water quality analysis techniques and modeling.

Important:	ArcView Version 3.1 or 3.2 must be installed on the computer before BASINS can be installed.

The procedure for a complete installation of BASINS from CDs is described in the subsections that follow. The installation process can take from 30 minutes to several hours, depending on computer specifications and performance, CD reader speed, and the geographical size of the area for which data are to be installed.

Prior to Installation:

BASINS 3.0 installation will OVERWRITE previously installed versions of BASINS located on the destination drive. To save an existing version of BASINS, rename the BASINS directory (e.g. BASINS_old) prior to running the new installation program.

If you have already installed earlier versions of GenScn, WDMUtil or HSPFParm, uninstall all of them before installing the new versions. When the uninstaller asks whether to remove shared system files, the following system files should be removed and will be reinstalled with the new distribution:

AT*.ocx, HASS*.dll (there may be one or more files following these patterns)

After uninstalling previous versions of GenScn, WDMUtil or HSPFParm and before installing new ones, it is a good idea to look in your windows system directory (c:\windows\system for Win95 or Win98, c:\winnt\system32 for WinNT) and verify that files AT*.ocx and HASS*.dll are deleted.

4.1 System Setup

Purpose

The BASINS installation program checks your computer for necessary programs; copies BASINS system files, tools, and models; and sets up BASINS icons automatically. The BASINS installation program also allows the user to install other BASINS components including WinHSPF, GenScn, and WDMUtil.

Application

The BASINS installation program allows the user to install the BASINS system and associated models. There are three main components of BASINS -- the BASINS Project, *Data Extraction* tool, and *Project Builder*, plus the models HSPF, SWAT, and QUAL2E, the postprocessor GenScn, and the utility program WDMUtil. The BASINS system installation program copies the models SWAT and QUAL2E, plus the Data Extraction tool and Project Builder to your local hard drive in a fixed directory structure. It also sets up a Windows BASINS program group that includes icons for the BASINS Project, Data Extraction tool, and Project Builder. An installation program for GenScn, WinHSPF, and WDMUtil is invoked with the installation of the BASINS system. When installed, icons for these programs will be added to the BASINS program group.

Procedures

- Download the system setup file from the BASINS web site.
- Run SETUPWIZARD.EXE.
- Select the option to install the BASINS system.
- Follow the instructions on the screen.

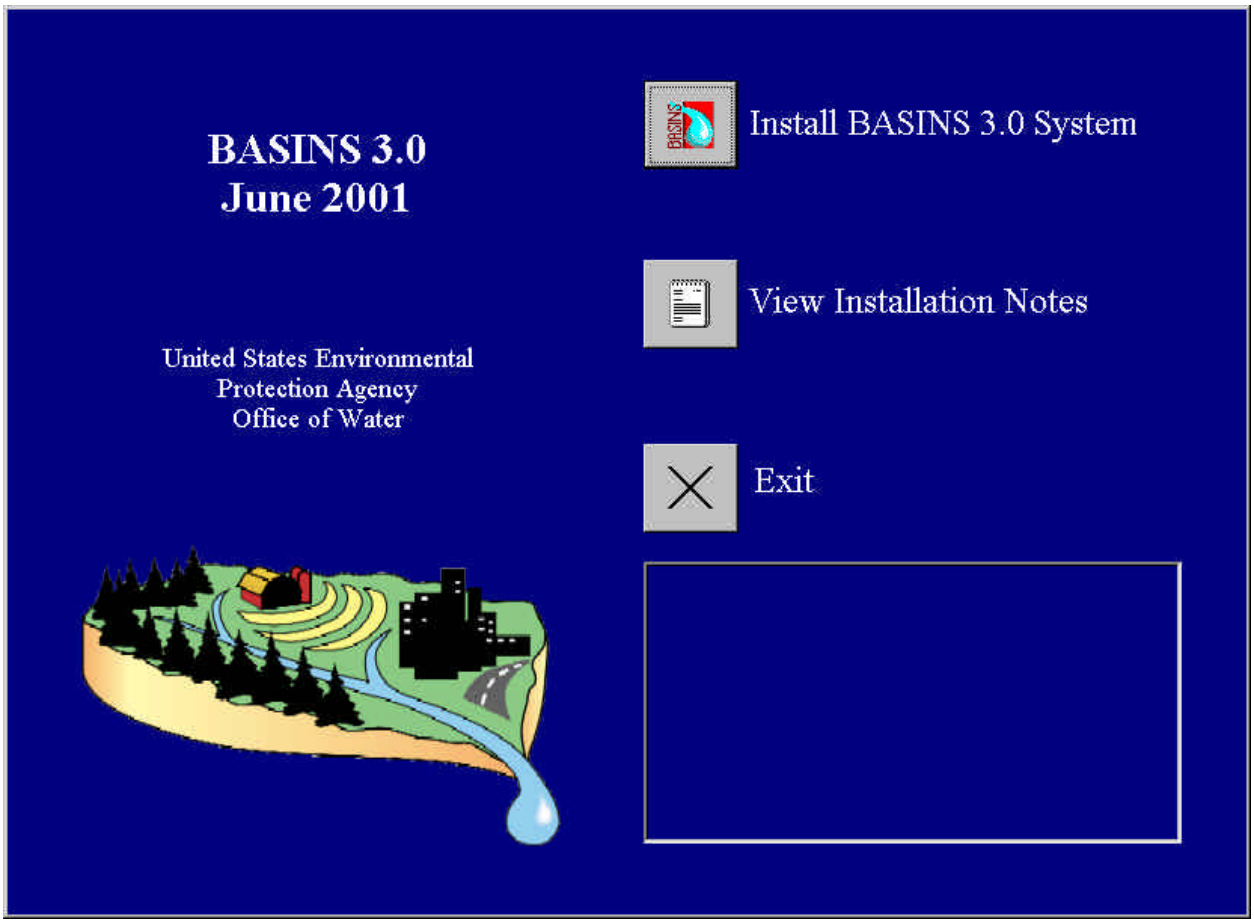
Tip: The BASINS installation program does not copy any BASINS data (except the optional tutorial) to your hard drive.

Tip: If you have multiple hard drives or partitioned drives, you may have only one BASINS directory in each partitioned or physical drive.

System Setup Procedures

1. To install BASINS 3.0 from the CD, insert the BASINS 3.0 Installation CD. If the auto run function is activated for your CD drive, the BASINS setup window will automatically appear. If not, run the setupwizard.exe file from the root directory of the CD.
2. If you are downloading the installation package from the web site, you will have to download all the zipped files and unzip them into a single directory (e.g. do not name the directory BASINS).

Run the setupwizard.exe file to start installing BASINS.



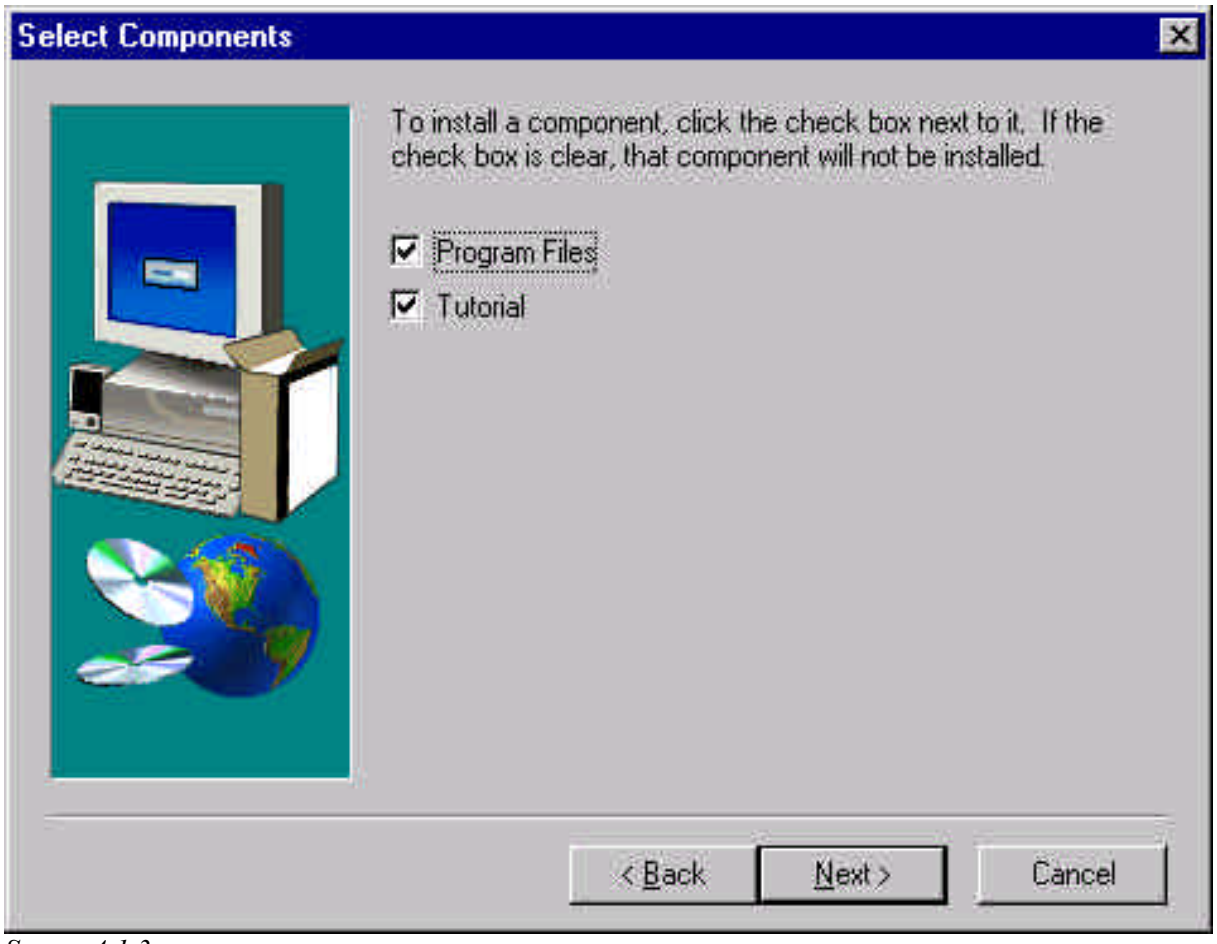
Screen 4.1.1

3. The setup wizard installation window provides options to install BASINS 3.0 or view the installation notes. Select the “Install BASINS 3.0 system” to install the BASINS GIS system and tutorial data set.

Screen 4.1.2

4. When prompted, select to install the BASINS system and the Tutorial data. The next dialog will prompt you to select a hard drive where BASINS will be installed. After you select a drive, setup will create a BASINS directory containing the completed BASINS 3.0 system and Tutorial data set.

Tip: BASINS 3.0 will OVERWRITE previously installed versions of BASINS located on the destination drive. To save an existing version of BASINS, RENAME the BASINS directory (e.g. BASINS_old) prior to running the new installation program.



Screen 4.1.3

5. Once the BASINS System installation is complete, another setup wizard window will appear for installing GenScn, WinHSPF, and WDMUtil. Install these programs following the directions below. Remember to uninstall previous versions first.

GenScn is required to analyze model output from SWAT and HSPF. WDMUtil is also provided but it is not required to be able to use the full functionality of BASINS 3.0.

The installation program for GenScn, WinHSPF and WDMUtil runs from a single executable file.

On a Windows NT machine, be sure you have administrator privileges before starting the installation. Since some new system files are included in this release, you may need to restart Windows after some files have been updated before continuing with the installation.

GenScn, WinHSPF and WDMUtil Installation Notes

On a Windows NT machine, be sure you have administrator privileges before starting the installation.

The help files in this package require Internet Explorer 5.0 or newer. If you get a message about needing a newer version of hhctrl.ocx or if help is not working, you also need to download and run: http://hspf.com/pub/misc/hhupd.exe

Since some new system files are included in this release, you may need to restart Windows after some files have been updated before continuing with the installation. On the other hand, you may have some newer files already installed than are included here, so when it says "The file you are about to install is not newer" you should answer "Yes" you want to keep the file.

If you have already installed an earlier version of GenScn, uninstall it before installing this new version. If you have installed a version of WDMUtil or HSPFParm before 1.0b5, uninstall the earlier version before installing this version. If you need to run one of these other programs on the same machine, contact the person who gave you the other program for a new version.

When un-installing, you may be asked whether to remove shared system files. The following system files should be removed and will be reinstalled with the new distribution: AT*.ocx, AT*.dll, HASS*.dll, MOLT*, Shape.dll (there may be several files following these patterns) It should be safe to answer "Remove All" and let the system figure out which files are safe to remove.

At completion, setup will have created a BASINS directory structure on the selected hard drive, as shown in Table 4.1.1. Setup also will have created a Windows program group labeled BASINS that contains program icons for BASINS, *Data Extraction*, and *Project Builder* (screen 4.1.4). The BASINS icon facilitates the use of BASINS projects with ArcView. You can use the *Data Extraction* and *Project Builder* program icons to generate BASINS projects.

Once GenScn, WinHSPF and WDMUtil have been installed, icons for these programs will be added to the BASINS program group. The *GenScn*, *WinHSPF*, and *WDMUtil* icons let you launch these programs independently without BASINS; this feature is included for those who want to perform simulations using user-supplied data or continue working on a session set up previously. Executing the models from within the BASINS environment offers the benefit of BASINS' data preparation capabilities.

Table 4.1.1 **BASINS Directory Structure**

BASINS Directory	Content or Purpose
drive:\BASINS\APR	BASINS-related ArcView project files (*.APR)
drive:\BASINS\CLASSES	Classification schemes for BASINS charts and maps
drive:\BASINS\DATA	BASINS environmental data in user-named subdirectories (See Section 4.2, *Data Extraction*, for more information.)
drive:\BASINS\DOCS	Contains BASINS and model documentation and manuals.
drive:\BASINS\ETC	BASINS system files
drive:\BASINS\MODELS	Model system files
drive:\BASINS\MODELOUT	Output files from BASINS modeling sessions (except QUAL2E)

drive:\BASINS\TEMP	BASINS temporary system files
drive:\BASINS\WCREPORT	Watershed Characterization Report Word documents storage location

Tip: The Windows program group is shown in Screen 4.1.4. Verify that these program icons have been created.

Screen 4.1.4

BASINS System Installation and Server Setup Options

Although BASINS was designed as a stand-alone program to be operated from a local desktop computer, there are several options for setting up and using BASINS from a network server. These options and their limitations are summarized in Table 4.1.2. Option 1 is similar to the standard setup discussed above; however, ArcView is run from a network server. This option requires no special setup. The BASINS setup program locates the ArcView program and prompts the user to specify the path is correct.

Option 2 allows the user to run the BASINS program from a network server. In addition, BASINS projects and data are also maintained on the server. Several additional steps are required to set up the BASINS system program, including the following:

- Map the desired network drive to a local drive using Windows Explorer. The selected drive letter (e.g., X:) must always be used to map to the network drive containing the BASINS directory.
- Run the system BASINS SETUP file as described above. You will be prompted to select the desired drive to copy the system files to. Select the mapped network drive (e.g., X:).
- Follow the remaining instructions on the screen.

BASINS data and project files need to be kept in the BASINS directory on the server, as described in the *Data Extraction* and *Project Builder* sections. Although multiple users will have access to a BASINS project on the server, it is recommended that only one user use the BASINS system at a time. The system may become unstable if accessed by multiple users at the same time. It should be noted that if you try to run BASINS from another computer it must be mapped to the network drive using the same local computer drive letter (e.g., X:).

Table 4.1.2 **BASINS Directory Structure**

Option	Description	Limitations
1	BASINS system and data on local computer and ArcView on server.	None
2	BASINS system and data on server and ArcView on server or local computer	Single user. Must always map network drive to the same local drive.

4.2 Data Extraction

The instructions for downloading BASINS GIS data from the BASINS web site have changed since this manual was produced. Go to the BASINS web site (http://www.epa.gov/ost/basins) for more details.

Purpose

The BASINS *Data Extraction* tool allows users to extract environmental data for a specific geographic area from downloaded archive files or BASINS CDs. This tool is also used to define the desired map projections.

Application

BASINS data on the Internet are already processed by specific geographic areas (e.g., cataloging units) and compressed into self-extracting zip files (archive files). The data are compressed into five separate files including the core data, Reach File Version 3 Alpha (RF3), Digital Elevation Model (DEM) polygon data, DEM grid data and meteorological data (WDMs). The core data file is required to set up a BASINS project, whereas the RF3 and DEM files are optional. The WDM files are required to run *HSPF*. Once the desired files have been downloaded, the *Data Extraction* tool is used to decompress the data and define a map projection, if desired.

Each set of BASINS CDS includes data for an entire EPA Region. In most applications, it is unnecessary to extract all data contained within a given region. Loading the data set for an entire region results in a very large project file that will likely slow down the performance (response time) of the computer. The BASINS *Data Extraction* tool was designed to let users define a limited area of interest and extract the corresponding data. This process places the retrieved data into the BASINS data directory on the user's selected hard drive.

Procedures for extraction from downloaded files

- Download the data files from the BASINS web site
- Select *Data Extraction* in the BASINS Windows program group
- Choose the "Web Archive" data source option
- Select the downloaded data files (core data file and/or RF3 and DEM)
- Specify if you want to project the data and enter projection parameters

Procedures for extraction from CD

- Insert BASINS CD 1
- Select *Data Extraction* in the BASINS Windows program group
- Choose the "CD-ROM" data source option

- Click on the Boundary Type button and select from the drop-down list
- Select the area for which you want to extract data
- Click on the *Data Extraction* button
- Select the data types for your extraction and specify whether you want to project the data
- Enter projection parameters if you chose to project the data

Tip: You may run the *Data Extraction* tool more than once to extract data for multiple geographically unconnected areas. Each time you run the *Data Extraction* tool, it will create a separate data directory under BASINS unless you choose to overwrite a previously extracted data set.

Data Extraction from Downloaded Web Files

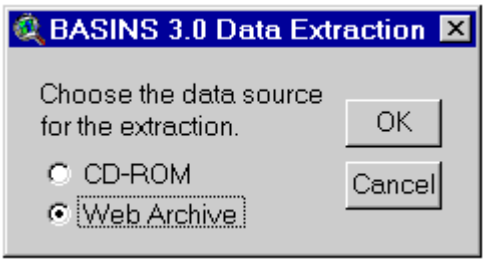
1. Download BASINS GIS data from the BASINS web site (http://www.epa.gov/ost/basins). Currently, the data are organized by U.S. Geological Survey (USGS) eight-digit hydrologic unit code (HUC). Future data sets will also be available by state. The data on the web site are grouped into four main file types.

   Core data. The main GIS data set is contained in a compressed file called NAME_CORE.EXE, where NAME is the eight-digit cataloging unit ID or two-letter state abbreviation (state data files will be available in the future). The core data file is required.

   RF3 data and DEM data. Reach File Version 3 (RF3) alpha, DEM polygon, and DEM grid elevation data are compressed into separate files by cataloging unit (8-digit USGS HUC). These files are not required for the basic assessment and reporting tools but are necessary for modeling and mapping display purposes.

   Meteorological data. The meteorological data, referred to as watershed data management (WDM) files, are available by state. These data are required to run *HSPF*. The data are organized by 2-letter state abbreviation. (*Note*: The *Data Extraction* tool is not used for extracting weather data files. These files can be downloaded and then self-extracted by double-clicking on the file name and placing the three extracted files into the BASINS_DATA directory.)

2. Run *Data Extraction* from the BASINS program group by navigating through the Windows Start, Programs, and BASINS menus on your desktop and clicking the *Data Extraction* icon (Screen 4.1.4). This initiates the BASINS *Data Extraction* tool program. The first dialog box prompts you to specify whether you want to extract from a BASINS CD or web archive file downloaded from the BASINS web site (Screen 4.2.1). Choose “Web Archive” and click *OK*.

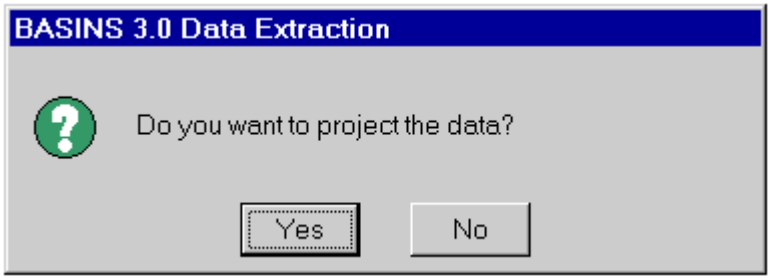


Screen 4.2.1

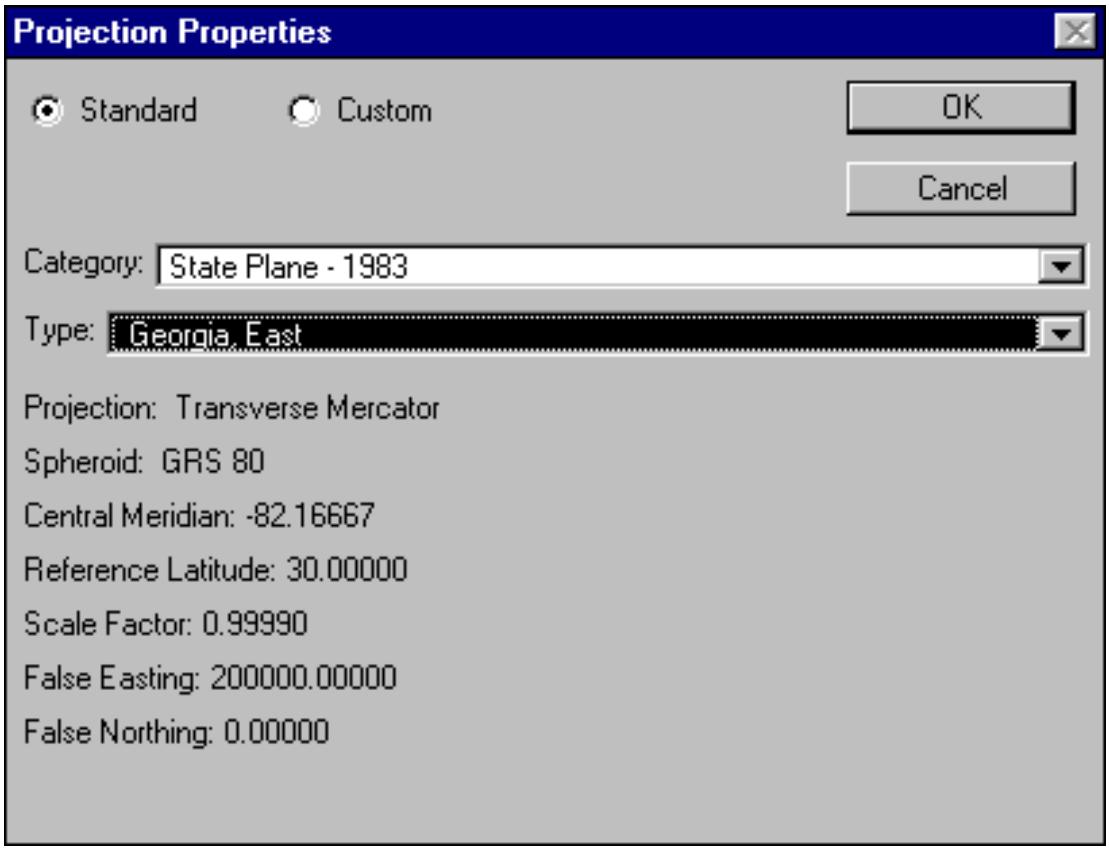
3. A dialog box prompts you to select the data types to extract (Screen 4.2.2). The data type options include Standard ("core") environmental data along with DEM, and RF3 or DEM grid(s).

Screen 4.2.2

4. A message box will pop up. Click on *OK* after reading it. The next dialog box prompts you to specify whether you want to project the data (Screen4.2.3). If you choose to do so, select a standard "category" and "type" from the pull-down boxes (Screen 4.2.4). The map projection parameters can be altered manually by choosing the "custom" option. For example, use the custom option to select the "Albers-Equal-Area" map projection for the conterminous United States and the "GRS 80" spheroid (GRS 80 spheroid is used to project data based on NAD 83). Additional information on map projections is provided at the end of this section. Click *OK* to proceed.



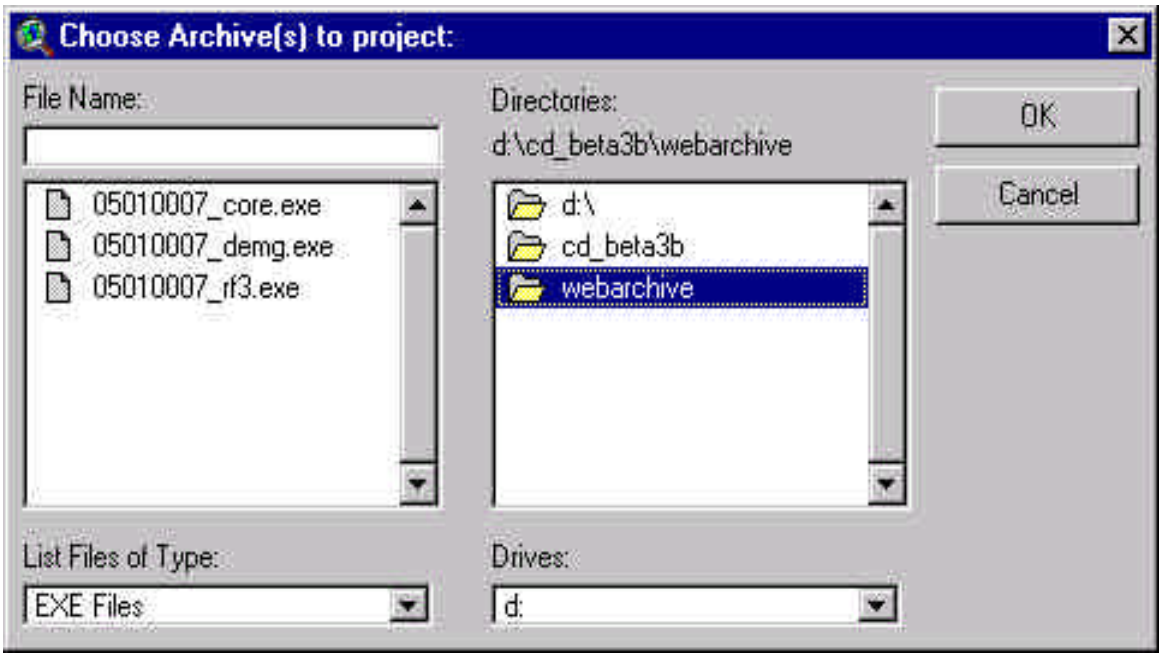
Screen 4.2.3



Screen 4.2.4

Tip: Although data projection is not necessary to display the data in GIS, it is necessary to project the data before you can use certain features in BASINS. For example, ArcView cannot calculate distances and areas if you have not projected the data and, therefore, you will not be able to run the models (e.g., HSPF) properly.

5. In the "Choose Archives to Project" dialog box, browse to select the downloaded compressed data files (Screen 4.2.5). The "core" archive file must be extracted first with or without the RF3 and DEM files. Multiple files for a given cataloging unit or state can be selected at the same time by holding down the shift key while clicking on the desired file names. Click *OK* to continue. The files will begin to self-extract to the BASINS directory where "NAME" is the state abbreviation or cataloging unit ID.



Screen 4.2.5

6. The final dialog box informs you that the extraction was completed successfully. Click *OK*.

7. Run BASINS *Project Builder*. Once the core data set has been extracted for a new cataloging unit or state, BASINS *Project Builder* needs to be run to build a new project. Refer to Section 4.3, *Project Builder*. If RF3 and DEM data were extracted separately for an existing project, simply use the Add Theme function in BASINS to add these data layers to a project view.

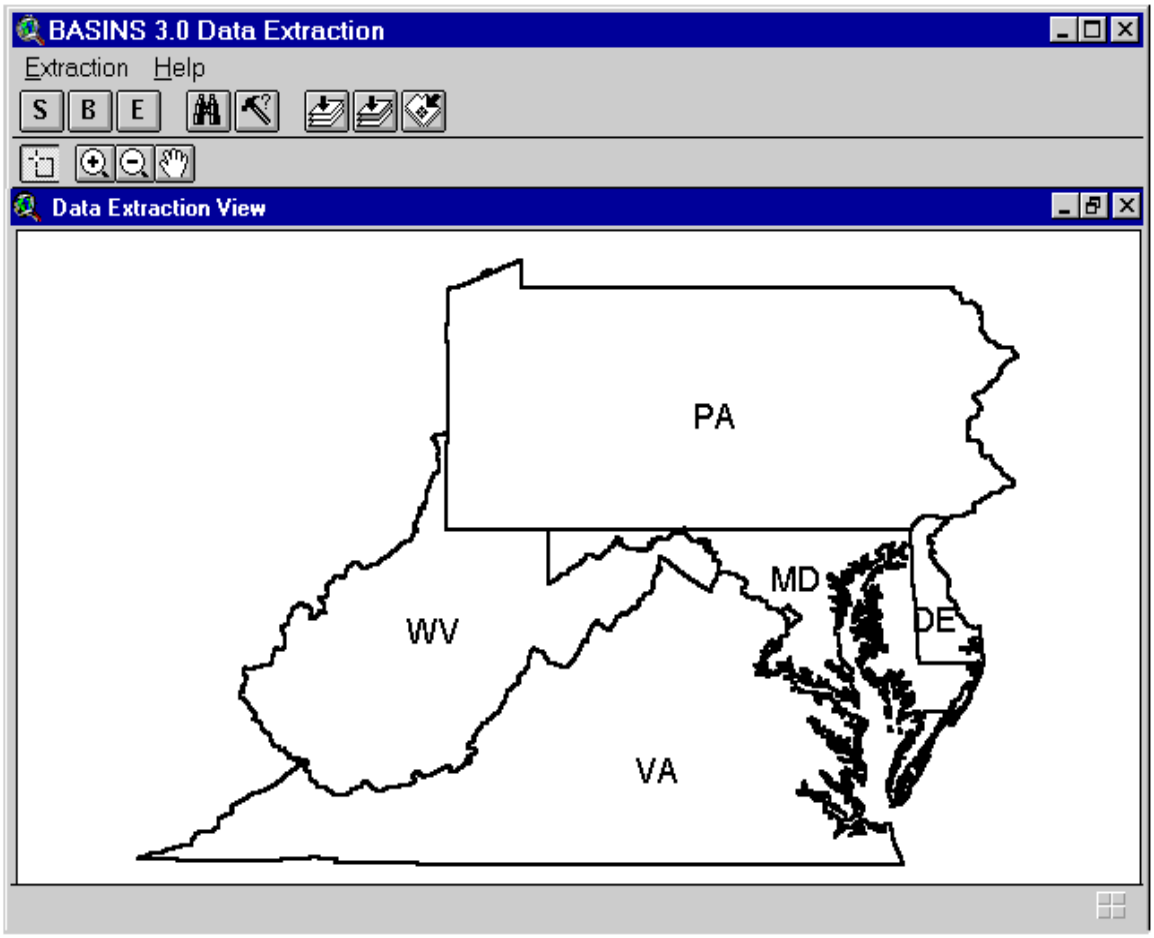
Tip: If RF3 and DEM archive files were not extracted with the core data and you would like to add them to an existing project, you will need to run *Data Extraction* on these two files. Project the data to the same map projections used for the core data. *Data Extraction* will place these files in the project directory under the /BASINS/DATA directory. Use the BASINS *Import* (add theme) tool to import these data layers to an existing project (see Section 7.2).

Data Extraction from BASINS CDs

1. Run *Data Extraction* from the BASINS program group by navigating through the Windows Start, Programs, and BASINS menus on your desktop and clicking the *Data Extraction* icon (Screen 4.1.1). This initiates the BASINS *Data Extraction* tool program. The first dialog box prompts you

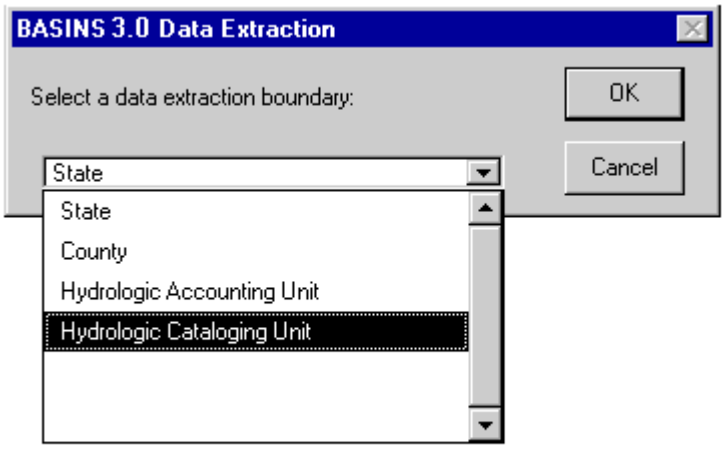
to specify whether you want to extract from a BASINS CD or web archive file downloaded from the BASINS web site (Screen 4.2.1). Choose "BASINS CD" and click *OK*.

2. A map of the geographic extent of the data available in the set of BASINS CDs will be displayed (Screen 4.2.6). A view of EPA Region 3 is shown here. Your view will display the appropriate EPA Region, depending on which regional CD set you are using. Follow the remaining extraction steps.



Screen 4.2.6

3. Pull down the Extraction menu and select Boundary Type. Four boundary types are available in this view (Screen 4.2.7) State, County, Hydrologic Accounting Unit, and Hydrologic Cataloging Unit. The Hydrologic Accounting Unit and Hydrologic Cataloguing Unit are six-digit and eight-digit USGS watershed boundaries, respectively.



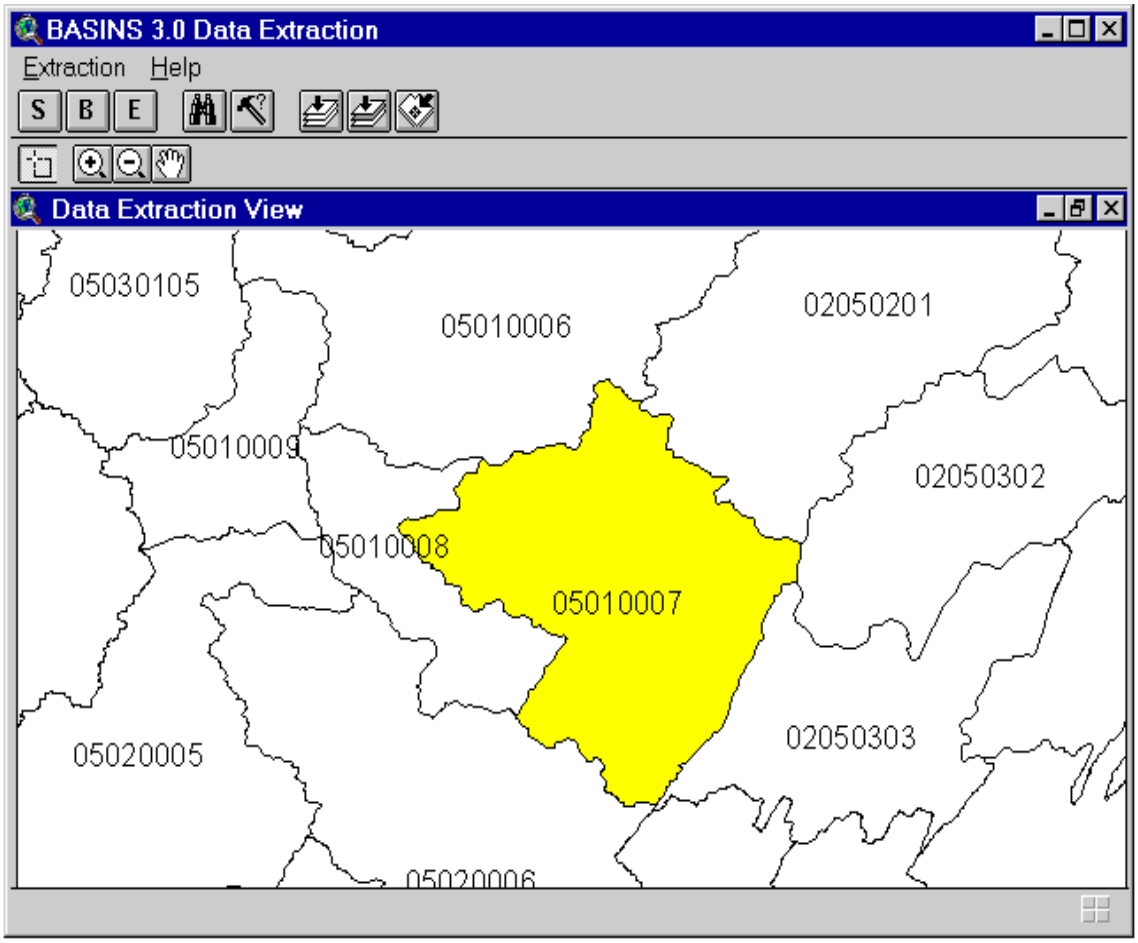
Screen 4.2.7

4. Select the boundary type that most effectively defines the area for which data are needed. The default boundary type is "state". Appropriate labels will be displayed on the view with the selected boundary type. You can extract data for one or more watersheds (select Cataloging Unit Boundaries), one or more counties (select County Boundaries), an entire accounting unit (select Accounting Unit Boundaries), an entire state (select State Boundaries), or an entire region (select all the states in the EPA Region). Click *OK* after making a selection.

5. Use the *Zoom In*, *Zoom Out*, and *Pan* features to optimize the view window. Activate the *Select Feature* tool from the ArcView button bar, and point and click or drag a box to select the area for which data are needed. The area will become highlighted in yellow (Screen 4.2.8).

   Make sure that you have enough space in the hard drive before you continue to the next step. You will need approximately 120 megabytes of free space to extract data for one cataloging unit (assuming that one weather data file [WDM] will be selected later in the section) and up to 500 megabytes for one state. You will also need 10 megabytes of work space.

6. Pull down the *Extraction* menu and select *Data Extraction* or click on the button "E", as shown in Screen 4.2.8.

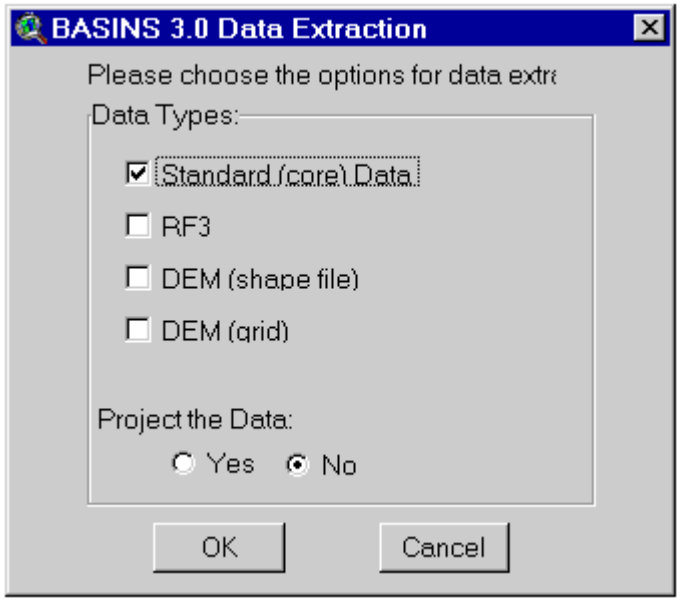


Screen 4.2.8

Tip:	Although data projection is not necessary to display the data in GIS, it is necessary to project the data before you can use certain features in BASINS. For example, ArcView cannot calculate distances and areas if you do not project the data and, therefore, you will not be able to run BASINS models (e.g., HSPF) properly.

Tip:	Projecting the data during data extraction will only project the data in shapefile format. Use the Grid Projector extension under the Data extension category to project Grid based data.

7. A dialog box prompts you to select the data types to extract and to specify whether you want to project the data during data extraction (Screen 4.2.9). The data types include standard, DEM, and RF3. Standard ("core") data include all environmental data in BASINS 3.0 except DEM and RF3 data. The standard data need to be extracted first with or without DEM and RF3. The DEM and RF3 files can be extracted individually at a later time and added to an existing BASINS project.

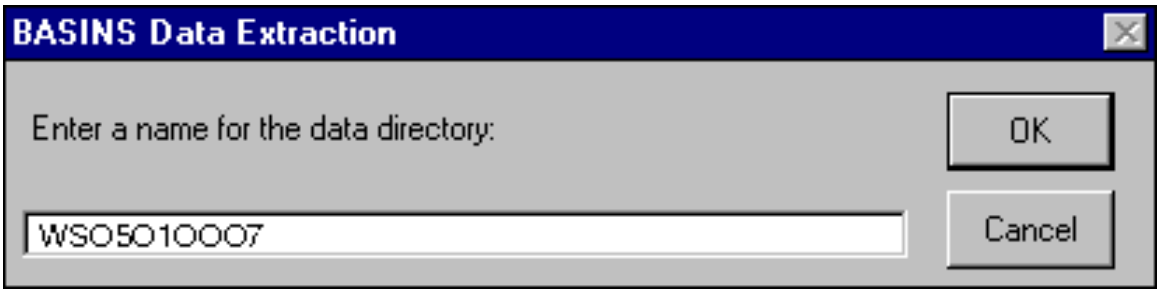


Screen 4.2.9

All data in BASINS CDs are unprojected (geographic). If you want to project the data to a projection of your choice, click on *Yes* in the "Project the data" option.

8. Select a standard "category" and "type" from the pull-down menus (Screen 4.2.4). This screen will not appear if you did not choose to project the data in Screen 4.2.9. The map projection parameters can be altered manually by choosing the "custom" option. Additional information on map projections is provided at the end of this section. Click *OK* to proceed.

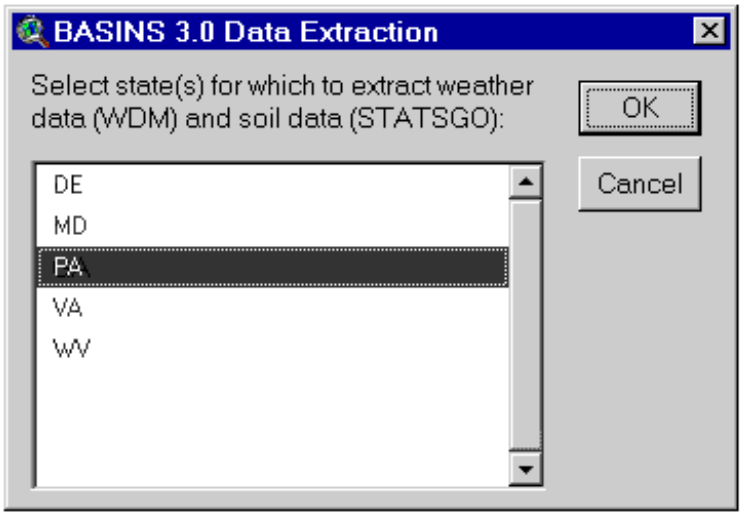
9. Enter a name for the directory that will contain the resulting extracted data (Screen 4.2.10). BASINS will accept only an eight-character name (without any spaces) for the directory name. This directory will be a subdirectory in the directory. After you enter a name, click *OK*.



Screen 4.2.10

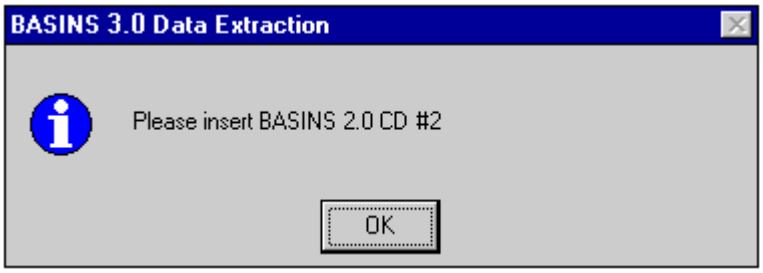
10. A dialog box will inform you that data extraction and the data projection will take from several minutes to several hours, depending on the performance of your computer, the speed of your CD reader, and the geographical extent of the area defined for extraction. Click *OK* to continue.

11. Extract weather data (WDM) and soils (STASGO) files. Hourly weather data for different weather stations within a given state are located in one Watershed Data Management (WDM) file. These data are necessary to successfully run *HSPF*. The STASGO soils data is used in the *SWAT* model simulation. The WDM files and the STASGO files are very large, and you might not want to extract these files outside your state boundary. Therefore, depending on the location of the geographic area you are interested in, select one or more states for which to extract weather data (Screen 4.2.11).



Screen 4.2.11

12. Insert BASINS CD 2 into the CD reader when you are asked to do so (Screen 4.2.12). Choose *OK* after you place the CD in the reader. Depending on the EPA Region and what data (standard, RF3, and/or DEM) you choose to extract, you will be asked to insert additional CDs when needed.



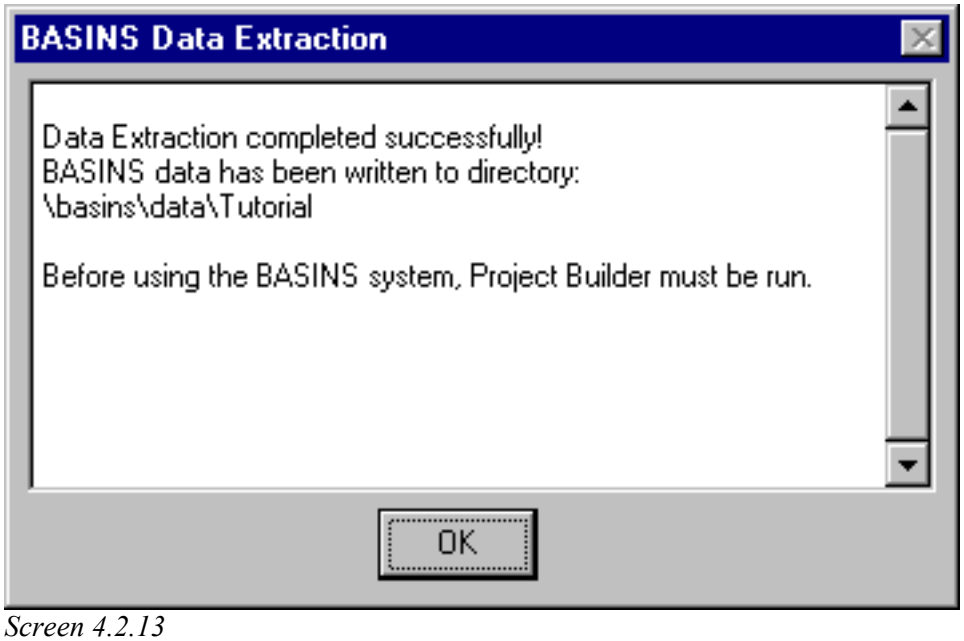
Screen 4.2.12

Tip: If your watershed is located near the state boundary, you might be interested in the meteorological stations located in a WDM file for the adjacent state. In that case you may select multiple states in Screen 4.2.13. All meteorological data and additional information are packaged in a set of three files with the same name and three different extensions WDM, INF, and TXT. The two-letter state

abbreviation is used for the first part of the file names. The *Data Extraction* tool creates a directory under BASINScalled MET_DATA. The MET_DATA directory contains all WDM files and other associated files.

13. A dialog box indicates completion of the data extraction (Screen 4.2.13). If the data extraction is not completed successfully, check for possible causes as follows:

    - Verify that there is enough free space on the destination drive (the drive that has the BASINS directory).
    - Verify that the computer has at least 32 megabytes of RAM installed.
    - Some CD readers spin down when not in use. Check to see that the CD-ROM can be accessed by BASINS. One way to do this is to open a DOS session and type "Dir d:" (or whatever letter the CD drive is).
    - Clean any fingerprints, dust, or smudges from the surface of the BASINS CD using a soft, dry cloth and CD cleaning liquid or ethyl alcohol.
    - Some computer systems are incompatible with the maps projection functions used by BASINS *Data Extraction* tool. Use the BASINS *Projector* tool described below to project the data set.



Screen 4.2.13

BASINS Projector Tool

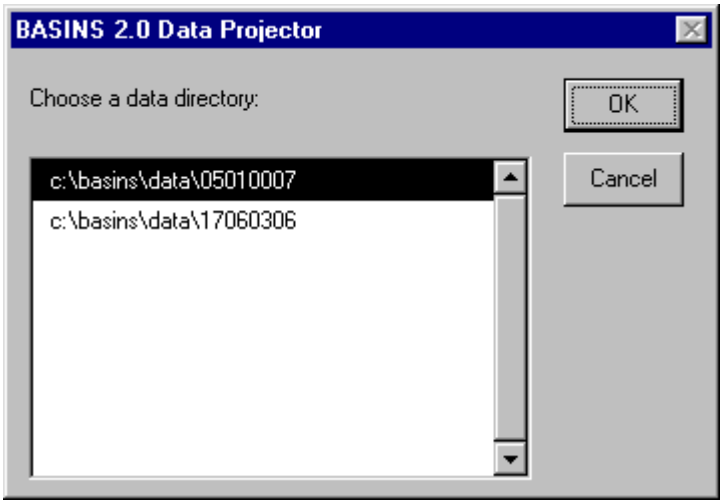
During BASINS development and testing, a problem was identified with the incompatibility of some computer systems and the projection functions used by BASINS *Data Extraction*. The BASINS *Projector* tool was developed to remedy these map projection problems. If you encounter an error due to projection problems, we suggest that you re-extract the data set into an unprojected mapping format, then run the BASINS *Projector* tool following the procedures described below.

1. If a projection error occurs during *Data Extraction*, delete the newly created data project file located on the BASINS DATA directory. Run *Data Extraction* and select *No* when prompted to project the data.

2. Once *Data Extraction* is complete, run BASINS *Projector* from the program menu to project the data set.

3. Specify the desired map projection parameters following the same procedures described for *Data Extraction*.

4. The next dialog box will prompt you to choose a data directory (Screen 4.2.14). Select a directory and click *OK* to continue. Selecting *Cancel* will exit the *Projector*.



Screen 4.2.14

5. The data will be projected and saved under the same project directory. Run BASINS *Project Builder* using this data set to create a new BASINS project.

Introduction to Map Projections

Map projections are mathematical formulations that allow areas on the surface of the earth to be represented on a flat surface such as a map. Precise positions of features on the earth's surface can be obtained from the map. All map projections distort shape, area, distance, or direction to some degree. The

impact of these distortions depends on the intended use of the map and its scale. At a large scale, such as a street map, distortion caused by the projection may be negligible because the map covers only a small part of the earth's surface. On small-scale maps, like regional and world maps, distortion should be a much bigger consideration, especially if the application of your map involves comparison of the shape, area, or distance of different features. In these cases, it becomes very important to know the projection characteristics of the map you are using. Depending on the application and the scale of the map, it is important to know which map projection is used by each data set so that you don't use spatial data sets that are in different projections within the same view.

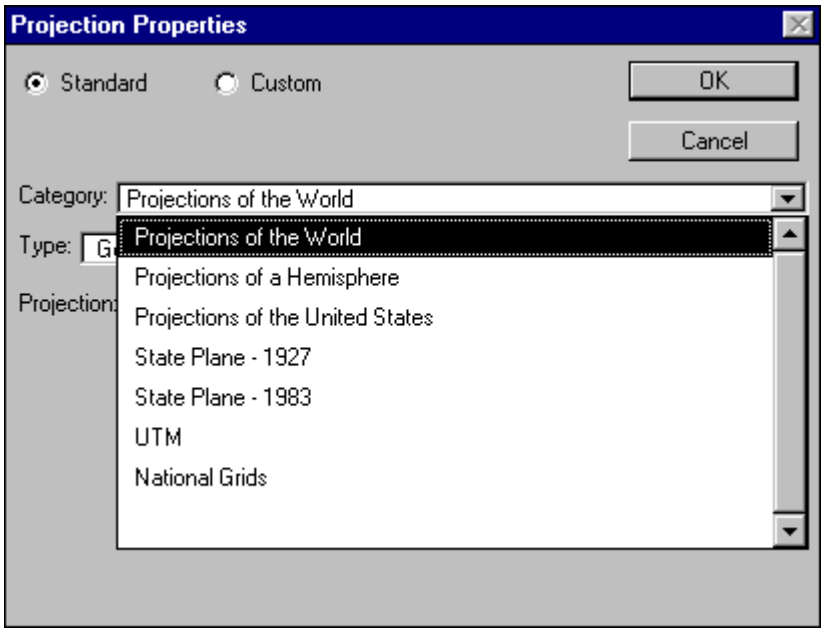
BASINS data are in decimal degrees and are based on the 1983 North American Datum (NAD 83). The decimal degrees system is a spherical coordinate system and therefore, by definition, unprojected. In decimal degrees, longitude-latitude is expressed as a decimal rather than in degrees, minutes, and seconds. Data in decimal degrees can be drawn in any projection in ArcView. The map projection for BASINS data is selected during *Data Extraction*. The user has the option of using a "standard" or "custom" projection. Since BASINS uses ArcView projection functions and dialog boxes to perform map projections, the user can refer to Arc View's on-line help for additional information on map projections. (For help, press the "F1" key while the projection screen is active.)

The first projection dialog box prompts the user to select a projection category and type (Screen 4.2.15). The categories are generic groupings developed for ArcView based on mapping scale (e.g., the world or state). The type pull-down menu contains actual projection names. The standard projection parameters will be displayed under the type as shown in Screen 4.2.16. The user can specify other projection parameter values by selecting the "custom" option (Screen 4.2.17). Remember that BASINS data is based on the 1983 North American Datum (NAD 83), therefore, the GRS 80 spheroid must be used to properly project the data.

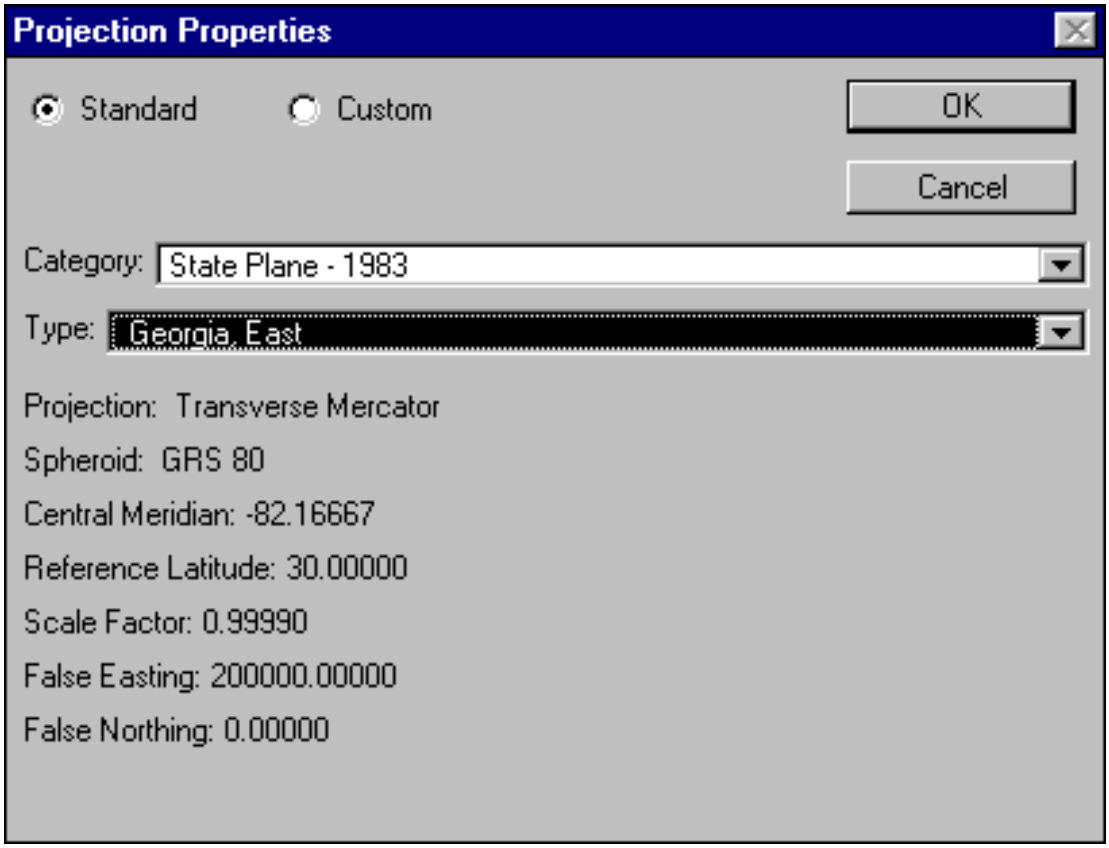
Tip: BASINS data are unprojected and based on the NAD 83. It is necessary to project BASINS data using *Data Extract*before you can use certain features in BASINS. For example, ArcView cannot calculate distances and areas if you do not project the data and, therefore, you will not be able to run BASINS models (e.g., HSPF) properly.

Tip: Press the F1 key while a Projection Properties screen is active to display ArcView's On-Line help on map projections.

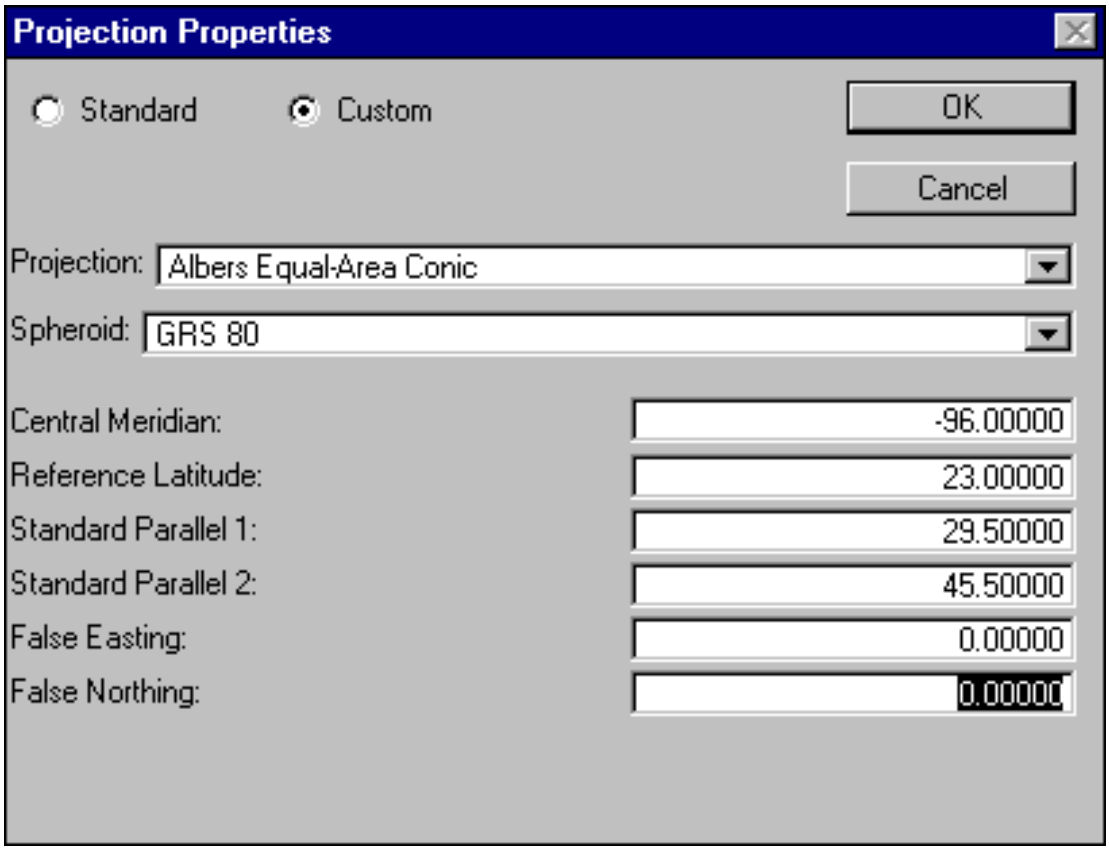
Tip: The BASINS *Projector* tool is currently being updated to include a function for converting BASINS data sets from NAD 83 to NAD 27. This will allow BASINS data to be compatible with agency data based on NAD 27. The new *Projector* tool will be available from the BASINS web site (www.epa.gov/ost/basins).



Screen 4.2.15



Screen 4.2.16



Screen 4.2.17

Tip: Data themes provided by the user must be projected to the same projection as the BASINS project. In addition, the data must be based on the NAD 83. The projection parameters for an existing BASINS project can be viewed using the "Lookup, Projection Parameters" menu function in the BASINS view. Refer to Section 7.2, Import, for information on importing user-supplied data (non-BASINS data).

4.3 Project Builder

Purpose

The *Project Builder* creates an ArcView project file from an extracted data set created with *Data Extraction*. The new project includes all BASINS GIS tools and utilities, as well as links to the geographic data you have extracted.

Application

BASINS *Project Builder* creates an ArcView project file that contains links to your retrieved data and incorporates all customized GIS functions into your ArcView project file. The project file contains a customized ArcView Graphical User Interface (GUI) including menus, buttons, and tools. Details of BASINS custom menus, buttons, and tools are discussed in later sections. All environmental data layers except Reach File Version 3 (RF3) and DEM data are automatically included in a project file. The RF3 and the DEM data layers need to be imported manually using the ArcView Add Themes feature under the View menu. RF3 and DEM data are tiled by watershed (8-digit cataloging units) and located in your data directory. (Refer to Section 4.2 on how to extract RF3 and DEM data from the BASINS CD or web site.) You can import RF3 and DEM data to your project file on an as-needed basis to keep your project file clean and efficient.

Key Procedures

- Click the *Project Builder* icon in the BASINS Windows program group
- Enter a project name
- Select a data directory from the drop-down list

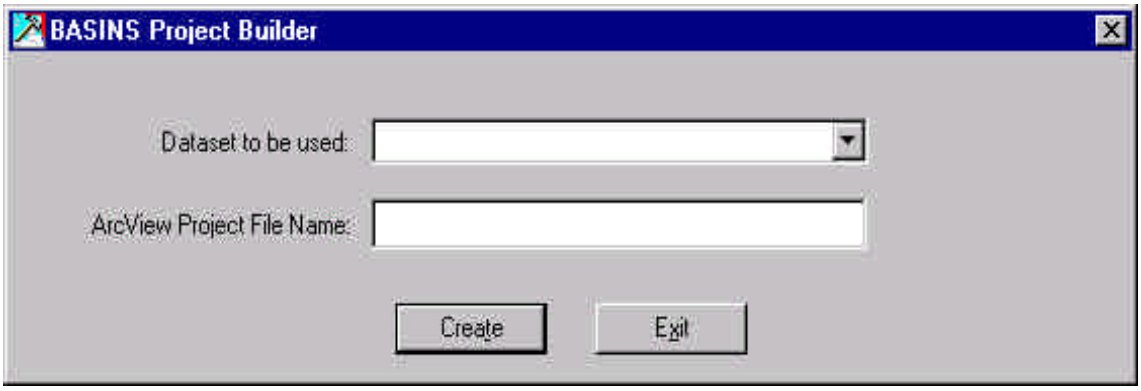
Tip: You may create multiple project files by running the *Project Builder* more than once. However, you cannot create a project file that includes data from two or more separate *Data Extraction* runs

Detailed Operations

1. Navigate through the Start, Programs, and BASINS menus on your desktop and click the *Project Builder* icon. This initiates the BASINS *Project Builder* subsystem (Screen 4.3.1).

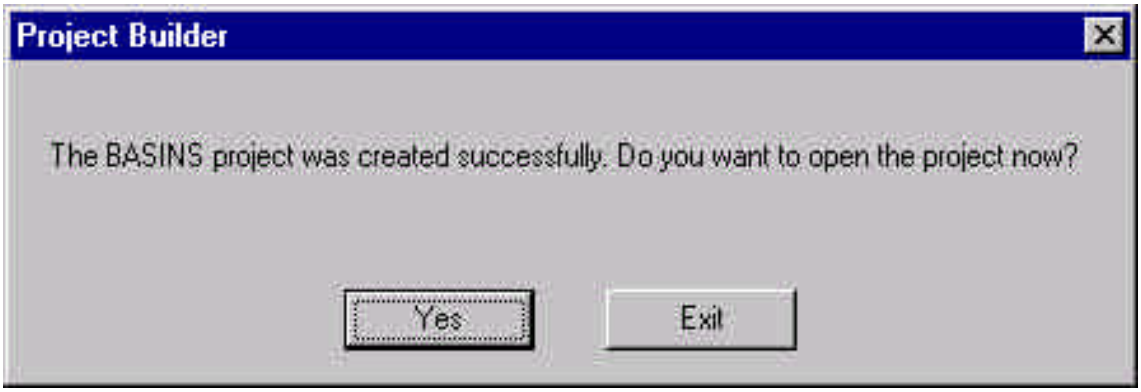
Screen 4.3.1

2. Supply a name for the project file to be created. The file name may be up to eight characters in length. Do not provide a file name extension. The file name will be assigned an ".apr" extension. Click *OK* after you enter a project file name (Screen 4.3.2).



Screen 4.3.2

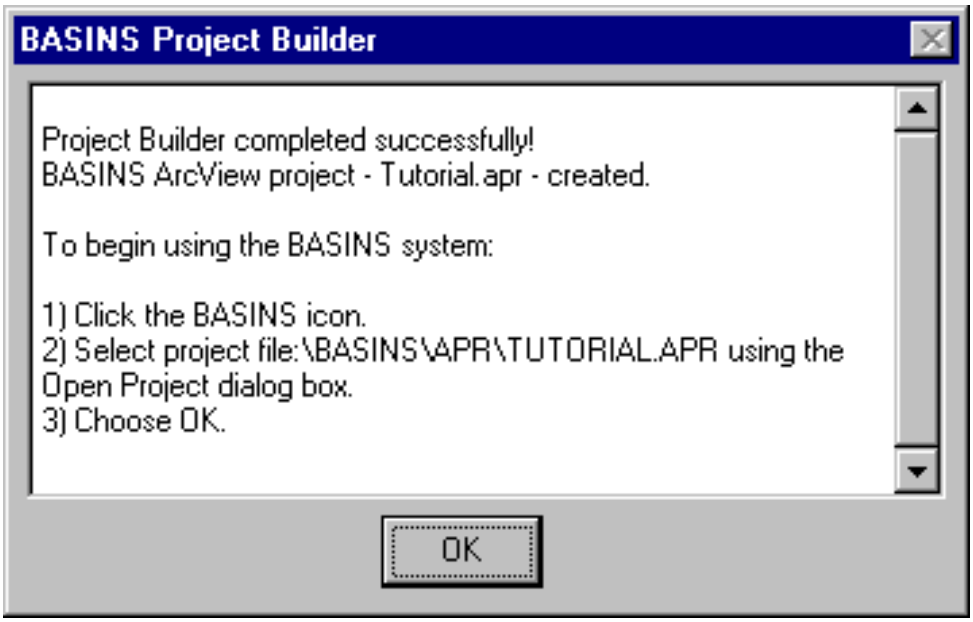
3. Select a data directory from the drop-down list (Screen 4.3.3). You may have multiple data directories, depending on the number of data extractions you have performed. The drop-down list contains all the directories created during data extractions. Click *OK* after you make your selection.



Screen 4.3.3

Tip: Although there will be an additional directory under BASINScalled MET_DATA, it will not be displayed in the drop-down list. The MET_DATA directory contains all weather data files for the *HSPF* program.

4. A dialog box indicates the completion of *Project Builder* (Screen 4.3.4).



Screen 4.3.4

TUTORIAL:

Click the *Project Builder* icon in the BASINS Windows program group

Enter a project name

Select the BASINSdirectory.

4.4 Opening a BASINS Project

Purpose

This section explains how to open a BASINS project file.

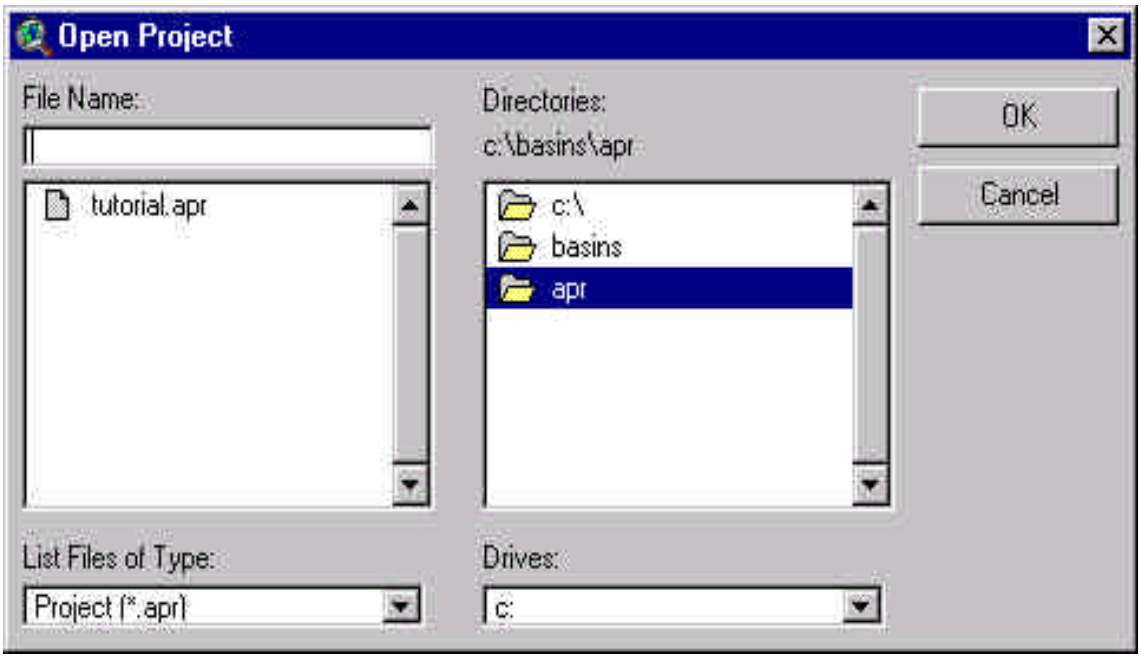
Application

To begin using BASINS, you need to open a BASINS project. Completing a *Data Extraction* and *Project Builder* session produces a BASINS project file. The project file contains instructions for ArcView that generate the BASINS custom environment, which consists of a specialized user interface, access to water analysis tools, and BASINS-supplied data.

Procedures

1. Click the *BASINS* icon in the BASINS Windows program group (Screen 4.1.4). This initiates the "Open BASINS Project" dialog box (Screen 4.4.1).

2. Select a project file from the \BASINS\APR directory. Click on *OK* after selection is complete. This will open the BASINS project.



Screen 4.4.1

Tip: It is better to select project files using the BASINS program icon than to use ArcView alone because the BASINS program cleans up temporary files when it is started.

TUTORIAL:

Select TUTORIAL.APR